PLANT IMMIGRANTS.

No. 187. **NOVEMBER, 1921.**

GENERA REPRESENTED IN THIS NUMBER.

Plates:

Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This circular is made up largely from notes received from our agricultural explorers, foreign correspondents, collaborators, and others relative to the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction of the Department of Agriculture. In it are also contained accounts of the behavior in America of plants previously introduced.

Descriptions which appear here are revised and published later in the Inventory of Seeds and Plants Imported.

These are ONLY ANNOUNCEMENTS OF THE ARRIVAL OF THE PLANT MATERIAL. With the exception of seed received in quantity, it must be propagated before it is available for the experimenters. This requires from one to four years, depending upon the species and the amount of material imported.

The Annual List of New Plant Introductions which is issued every autumn gives descriptions of the material ready to send out to experimenters. You can apply for any material described in Plant Immigrants and your application will be kept on file and given precedence whenever the material is sent out. If the number of such applications on file is sufficient to exhaust the available supply of any particular plant, it will not be described in the Autumn List of New Introductions.

One of the objects of the Office of Foreign Seed and Plant Introduction is to secure experimental quantities of new or rare foreign seeds or plants for plant breeders and experimenters, and every effort will be made to fill specific requests.

DAVID FAIRCHILD,
Agricultural Explorer in Charge,
Office of Foreign Seed and Plant Introduction.

Issued March 15, 1922. Washington, D. C.

Coleus rotundifolius (Menthaceae), 54321. From Mount Silinda, Southern Rhodesia. Tubers presented by Mr. W. L. Thompson. "Tubers which serve as food for the natives of this district, and of which we often partake. The native name is 'Zwidata.' The tubers may be described as a substitute for Irish potatoes. We find that they are excellent prepared in the same way as creamed potatoes. They are not very mealy but could scarcely be called watery. If they could be induced to grow to a larger size, with increase rather than decrease of other good qualities, they might be very useful. I think they are quite prolific yielders. They require quite a long season to mature and I presume that, if these reach you in condition to grow, it would be necessary to start them in a greenhouse. The tubers send out sprouts much as do sweet potatoes." (Thompson.)

Dioscorea esculenta (Dioscoreaceae), 54309. **Yam.** From Suva, Fiji Islands. Tubers presented by Mr. C. H. Knowles, Director of Agriculture. "A smooth-skinned, white-fleshed yam, – somewhat moist when cooked, but of good flavor." (R. A. Young.)

This small yam, the 'Kawai,' is certainly worth the attention of anyone who has facilities for cultivating a small area of food plants. Since it is indigenous to Fiji, the natives have long recognized its value as a food, and it is cultivated in most if not all of the Fiji Islands. It is cultivated in parts of India and Burma. In the latter it is said to be found wild.

The stem of this creeper is round and full of prickles. It is propagated by planting the small tubers or roots, which, like the old ones, are oblong, of brownish color outside and a pure white within. When cooked, the skin falls off like the bark of a birch tree. The root is very farinaceous, and when well cooked looks like fine mealy potato, although of superior whiteness. The taste recalls that of the Arracacha of South America. There is a slight degree of sweetness about it which is very agreeable to the palate.

The 'Kawai' can be grown in districts too wet for the finer varieties of the yam and it is not attacked by the leaf fungus *Gloeosporium pestis* which attacks yams, particularly the better varieties, and is very severe in wet years. Good land is necessary for a good crop, and it must be well drained.

No insect pests or fungus diseases were found to damage the plant during 1916-1919.

The 'Kawai' can be either boiled or roasted and, as with the potato, it is best not to remove the skin before cooking. A thorough cleaning is the only preparation necessary. (Adapted from Agricultural Circular, Fiji, vol. 1, p. 86.)

Elaeis guineensis (Phoenicaceae), 54039 and 54040. **Oil palm.** From Belgian Kongo. Seeds presented by Mr. R. Kinds, director, First Section, Eighth Division, Ministère des Colonies. Quoted notes by Mr. Kinds.

The oil palm of West Africa is the source of the greater part of the palm oil used in soap manufacture. In western Africa, particularly the Guinea-Nigeria region, the exports of palm oil and palm kernels had an annual value of some thirty millions of dollars during the decade immediately preceding the war. In Brazil, where the trees were apparently carried by the negroes, the oil, – known as "dende oil" – is as commonly used by the natives as a culinary aid as is olive oil in other places. A number of selected strains have been introduced by this Office from time to time and two of them are listed here for trial in our tropical dependencies.

For further description and previous introduction of *E. guineensis* see S.P.I. Nos. 47504 to 47507, Plant Immigrants No. 159, July, 1919, p. 1455, 1456, and pl. 241.

54039. "Variety 'Bundi' which is a round fruit with a very large kernel, very hard shell, and not very thick fleshy outer covering."

54040. "Variety 'N'Sombo,' with elongated fruit, medium kernel, and a very thick outer covering which is very rich in oil. It is the best variety of the Lower Kongo and one of the most sought after for plantations."

Malus sylvestris (Malaceae), 54299 to 54302. **Apple.** A collection of aphis-resistant apples, presented by Señor don Salvador Izquierdo, proprietor of the Criadero Santa Ines, Santiago de Chile. Quoted notes by Mr. Wilson Popenoe. "Chilean apples are probably inferior to our own, in so far as dessert quality is concerned. Most of them are small fruits, with rather mealy flesh of sweet and not very sprightly flavor. They are interesting to us because of their resistance to the woolly aphis, the worst pest of Chilean orchards. The main purpose in introducing them is for trial as aphis-

resistant stock plants on which to graft our best commercial sorts."

49299. "'Admirable de Otoño' (Autumn Beauty). Described by Señor Izquierdo as a large, excellent autumn fruit. The tree is very productive."

54300. "'Huidobro.' Also known as 'Araucana' and 'Araucana Huidobro.' This is said to have originated in Chile on the Hacienda of Señor Vicente G. Huidobro from an Italian seed. The tree is described as very vigorous and productive, the fruit is medium to large, yellow, of firm texture, sweet, aromatic, and juicy. Its ripening season is late autumn (April to May in Chile) and the fruits can be kept in good condition without cold storage, until the following October or sometimes November. Its shipping qualities are excellent.

"'Huidobro' cannot be strongly recommended as a dessert apple, and is not introduced as such; immunity from the attacks of the woolly aphis is the quality which gives it interest and makes it valuable in Chile and perhaps elsewhere. Señor Izquierdo has found that plants of this variety grafted on seedling apple roots will be attacked by the aphis only from the roots upward to the union of stock and scion, not a single insect ever passing on to the scion to carry on his nefarious activities.

"Because of this characteristic, it is possible that 'Huidobro' may have value in the United States as a stock plant on which to graft other and better varieties of the apple.

54301. "'Productiva' (Productive). A large fruit, striped with red, ripening in April and May in central Chile."

54302. "'Citronelle.' A small, sweet, yellow apple, said to be an excellent keeper."

Malus sylvestris (Malaceae), 54385, 54387 to 54389, and 54392. **Apple.** From Avondale, Auckland, New Zealand. Seedlings presented by Mr. H. R. Wright. Quoted notes by Mr. Wright.

54385. "Root grafts, second generation seedlings from 'Irish Peach.' This seedling is aphis-resistant and has a perfect affinity for the Chinese crab, *Pyrus prunifolia*."

54387. "'Bordeaux Reinette.' New blight-proof apple, resembling 'Cox's Orange' in color and shape, with rich, aromatic flavor; fruit a good keeper, making an ideal apple for home or export; a heavy cropper."

54388. "Root grafts, 'Delicious' x 'Cox's Orange' cross, nearly aphis-resistant; a beautiful apple; an early and heavy cropper of superb quality."

54389. "Root grafts, 'Imm's Seedling.' A large culinary apple, one of the very best for that purpose; good cropper, and aphis-resistant. A most promising stock; of upright growth, with very large foliage, and a splendid root system."

54392. "A sport from the 'Ribston Spy' cross, differing only in its most peculiar color; it is aphis-resistant. Flavor and keeping qualities superb."

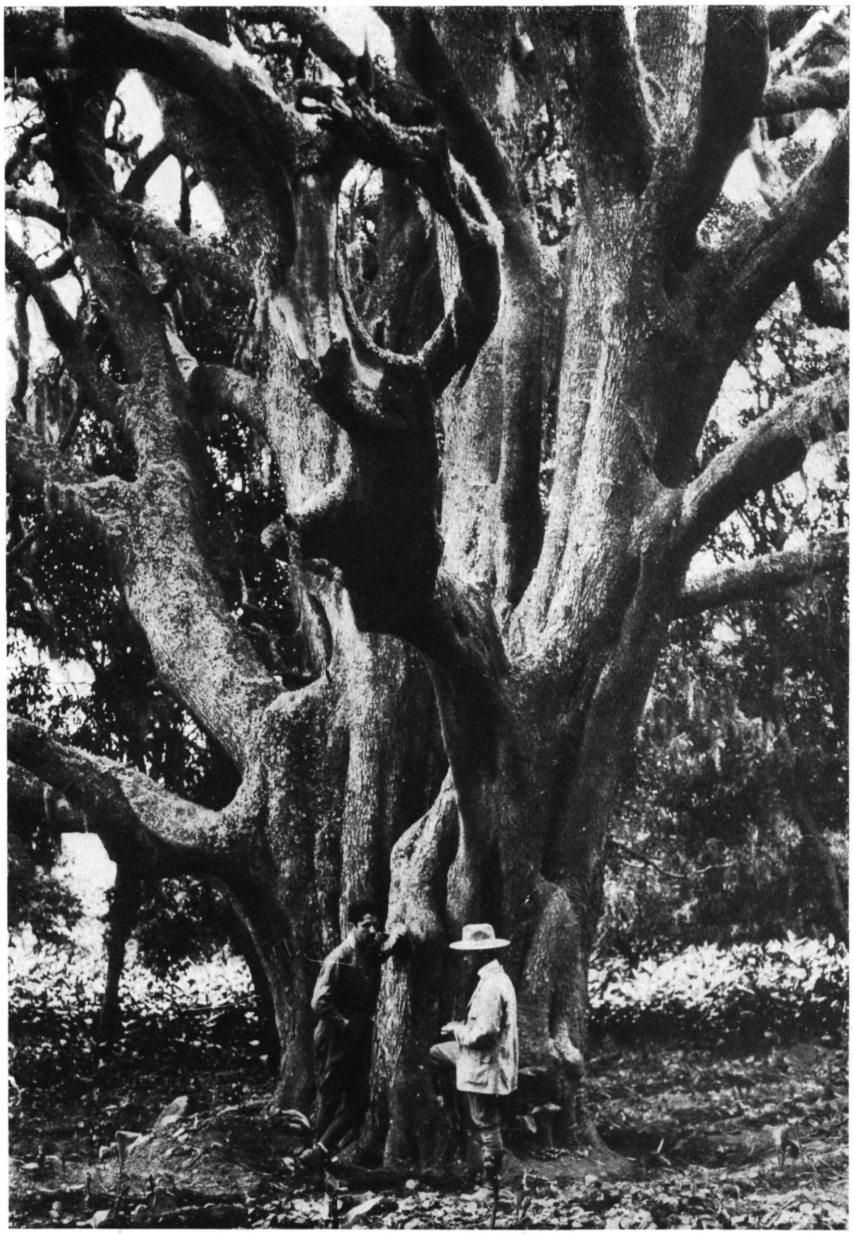
Mangifera indica (Anacardiaceae), 54041. **Mango**. From Pachmarhi, Central Provinces, India. Seeds presented by the Superintendent, Government Gardens, through Mr. William Bembower, Allahabad Agricultural Institute, Allahabad. "Seeds of 'Pachmarhi,' frost-resistant variety." (Bembower.)

"The Bombay mango grafts were seriously affected by frost each year, when grown at Pagara. The 'khuds' and ravines of the Pachmarhi Hills are full of wild mangos and it has now been found that if the Bombay varieties are grafted on the wild 'Pachmarhi' seedlings, the resulting trees, without deteriorating in quality, are quite frost-resistant." (Agricultural and Cooperative Gazette, Nagpur, vol. 9, p. 15.)

Oryza sativa (Poaceae), 54289 to 54292. **Rice**. From Saigon, Cochin-China. Seeds presented by M. E. Carle, Director, Laboratoire de Genetique, Institut Scientifique de L'Indochine. Notes adapted from Bulletin Agricole, de L'Institut Scientifique de Saigon, vol. 2, pp. 41, 46, 48, and 49.

54289. 'Nam-vian,' or 'ba sao.' A recent introduction from Cambodia, with stalks 12 feet long and thick heads up to a foot long. A floating rice with a different flavor from that of the ordinary rice. For the first two months floating rice grows as ordinary rice, but later, floods of the Mekong River, which start in July, gradually submerge all of the plant except the leaf tips. The water averages 1.2 to 1.5 meters (4 to 5 ft.). As the water recedes after November, the stalks bend down and when the lower part touches the ground the nodes take root.

The stalk of floating rice is thicker than that of ordinary rice and is from 2.5 to 5 meters (8 to 16 ft.) long. Only the tips of the stalks are leafy. The growing period is 8 to 9 months, from April or May to



A PATRIARCH OF THE AVOCADO FAMILY.

(*Persea americana* Mill.)

This avocado tree, now dying (probably of old age), stands in a small orchard in the Patate Valley of Ecuador. It is believed to have been planted by the Jesuit missionaries more than 150 years ago. The seed may have come from Mexico, since the tree belongs to the well-known Mexican race of avocados. (Photographed by Wilson Popenoe, near Ambato, Ecuador, January, 1921; P18360FS.)

AVOCADO TREES IN THE CHOTA VALLEY, NORTHERN ECUADOR.

(*Persea americana* Mill., S. P. I. Nos. 54270 to 54273.)

This small, arid valley, which lies at an elevation of about 5,000 feet near the northern boundary of Ecuador, contains some of the best avocados in tropical America. Most of them are of the Mexican race, a few are West Indian, and a few may be hybrids. A set of the most promising ones has been introduced for trial in the United States. The trees in the center of the photograph are avocado trees. (Photographed by Wilson Popenoe [telephoto lens], Chota Valley in northern Ecuador, February 18, 1921; P18416FS.)

December or January. No care is given the crop after the sowing.

54290. 'Nang-dum.' A recent introduction from Cambodia. Of the floating rice group, this is the only variety which yields white, fine rice; it requires only a medium amount of water. The grain falls easily from the short head.

54291. 'Song-lon.' The oldest variety, extensively distributed from Cambodia. The large thick grains are in heads 7 to 9 inches long.

54292. 'Nang-Rum-Nho.' A variety from Saigon with a normal growing period of 120 days, maturing from December 20 to January 5, with a normal yield of 1,500 to 2,167 kg. per hectare (1,379 to 1,932 lbs. per A.).

Persea americana (Lauraceae), 54270 and 54271. **Avocado.** From Ecuador. Collected by Mr. Wilson Popenoe, Agricultural Explorer. Quoted notes by Mr. Popenoe.

54270. "(No. 626. Hacienda San Vicente, Ibarra, Ecuador.) Cuttings of Avocado No. 47. 'Tamayo.' The parent tree stands in one of the 'huertas' of the Hacienda about half a mile north of the house at an altitude of 6,100 feet. This variety, so far as can be judged by an examination of the parent tree, is either a very unusual Mexican, or else a hybrid between the Mexican and West Indian races. The fruit is of good size, about 18 ounces in weight, and of convenient oval form. It is fairly attractive, being smooth, with the surface light green, washed or overspread with maroon-purple at the stem end. The skin is not woody; it resembles both in thickness and texture that of such large-fruited Mexican varieties as 'Puebla' and 'Gottfried.' The flesh is cream-colored with a very few, inconspicuous fiber markings. The quality is very good. The seed is small, and tight in the cavity. The tree appears to bear fair, but not heavy, crops."

54271. "(No. 628. Ibarra, Ecuador.) Cuttings of Avocado No. 49. 'Egas.' The parent tree stands in one of the 'huertas' at the Hacienda San Vicente, about half a mile north of the house. This is a Mexican avocado, of much the same general character as 'Puebla,' but having a relatively smaller seed than the latter. The fruit is broadly obovoid, 8 to 12 ounces in weight and glossy maroon-purple when fully ripe. The skin is of average thickness for a large-fruited Mexican avocado; the flesh is devoid of fiber and is of good quality. The seed is tight in the cavity; in some specimens it is very small, in others, medium-sized. The parent tree is a very old one, and is said to be very productive."

Prunus spp. (Amygdalaceae), 54393 to 54395. From Avondale, Auckland, New Zealand. Seedlings presented by Mr. H. R. Wright. Quoted notes by Mr. Wright.

54393. *Prunus domestica*. **Prune.** "A very large black prune ripening early, before 'Petite d'Agen'; should be valuable."

54394 and 54395. *Prunus salicina* x (?). **Plum.**

54394."An enormous cropper,and a good shipper; splendid for jam and for canning; a valuable commercial fruit; should be widely planted."

54395. "'Wright's Hybrid.' 'Cherry Plum' x 'Wright's Early (Jap).' Cross like cherry plum (*Prunus cerasifera*) in appearance,but larger;good alike for jam, canning and dessert. The tree is very upright in habit, and should make a good hedge."

Notes on Behavior of Previous Introductions.

"*Capsicum annuum*, S.P.I. No. 45665,the Mexican pimento,is a desirable acquisition. All seeds germinated and produced fine plants that bore a quantity of beautiful fruits, moderately pungent and rich crimson when ripe. I am so well pleased with this pimento that I hope to make a specialty of growing it for local market." (Wm. Garrison, Slidell, La., Dec. 21, 1921.)

"*Ulmus pumila*, S.P.I. No. 40898. Plants sent me in 1917, are now thrifty trees, 20 to 25 feet in height. They are short-stemmed,and much-branched, with round, spreading tops and drooping branchlets. They are very hardy, and extremely useful for windbreaks. In this respect it is better than *U. campestris*,which is easily uprooted." (Joseph A. Smith,Edgewood Hall,Providence, Utah, Jan. 3, 1922.)

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